

REMARKS/ARGUMENTS

Claims 1, 2, and 4 remain in this application. Claims 1 and 4 have been amended. Claims 3 and 5-10 have been cancelled. New claims 11-15 have been added for consideration. The new claims are believed to be fully supported by the specification as filed—no new matter is believed to be included. Examples of support for the new claims may be found in at least the following paragraphs: for claims 11-14, paragraph [0025]; for claim 15, paragraph [0012]. The amendments to claim 1 are likewise supported at least by paragraphs [0012] and [0025] and Figures 1-3 together with the associated descriptions.

Section 112

Claims 5 and 7 were rejected under Section 112. These claims have been cancelled herein. All Section 112 issues are thus believed to be resolved.

Section 102

Claim 1, as amended herein recites in part that “the apparatus further comprises a medium communicating with the microreactor arranged and positioned so as to be capable of providing thermal exchange between the microreactor and the pressure vessel.” As shown for example in FIG. 1 of the application, the heat conductive medium 22 of the embodiment of FIG. 1 is in thermal communication with the microreactor 20 and is further in thermal communication or contact with another body—in this case, the walls 14 of the pressure vessel 12. Thus the heat conductive medium is so positioned as to be capable of providing thermal exchange, as recited in the claim. Heat from the microreactor can be passed readily to the pressure vessel walls, and heat from the pressure vessel walls can be passed readily to the microreactor.

US Patent 4,670,404 (“Swift”) does not disclose or suggest the quoted aspect of this claim, nor the combination recited in the claim as a whole.

In the Swift reference, the innermost volume (labelled 120 ml) of the test vessel 10 is surrounded by not just one but two insulating layers, the “layer of insulation” 120 and the much larger-appearing “cylindrical insulation section” 114. Thus even if guard heater 118 and/or additional heater 122 are considered to be heat conducting media, they are not arranged and positioned so as to be capable of providing thermal exchange as recited in the claim.

Further, Swift as a whole teaches the need for small thermal masses and thermal isolation, specifically in order to more effectively simulate typical large-scale chemical plant processes, especially exothermic processes. The present invention, in contrast, is directed in part to avoiding thermal isolation of the microreactor portion of the invention, even to the level of enabling controlling the temperature of the microreactor by controlling the temperature of the larger pressure vessel within which it is placed, specifically to avoid thermal and other problems typical of traditional large-scale chemical processing and production, rather than to simulate such conditions. For at

least these and the foregoing reasons, claim 1 is believed to be allowable, and such allowance is respectfully requested.

The remaining claims, claims 2, 4, and new claims 11-15, all depend directly or indirectly from claim 1, and are thus also believed to be allowable on the same basis.

Section 103

Applicants believe the Hierholzer reference (US Patent No. 4,433,233) adds nothing significant to the disclosure of the Swift reference in relation to the invention as claimed. Because the disclosure of Swift, including the heating elements disclosed therein, does not disclose or suggest the features of the independent claim, the use of a particular type of heating element as in Hierholzer adds nothing of significance. Moreover, Hierholzer does not disclose or suggest use of particulate silicon carbide, nor suitable particle size ranges for the present invention, as now recited in new claims 11-13.

Conclusion

Based upon the above amendments, remarks, and the papers of record, applicant believes the pending claims of the above-captioned application are in allowable form and patentable over the prior art of record. Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Applicant believes that a three month extension of time is necessary to make this Reply timely. A separate request for extension with authorization to charge Deposit Account 03-3325 is submitted herewith.

Please direct any questions or comments to Greg Bean at 607-974-2698.

Respectfully submitted,

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